SURREBUTTAL TESTIMONY

OF

BRIAN HORII

ON BEHALF OF THE

SOUTH CAROLINA OFFICE OF REGULATORY STAFF

DOCKET NO. 2020-264-E

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IN RE: JOINT APPLICATION OF DUKE ENERGY CAROLINAS, LLC AND DUKE ENERGY PROGRESS, LLC FOR APPROVAL OF SOLAR CHOICE METERING TARIFFS PURSUANT TO S.C. CODE ANN. SECTION 58-40-20

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND OCCUPATION.

My name is Brian Horii. My business address is 44 Montgomery Street, San Francisco, California 94104. I am a Senior Partner with Energy and Environmental Economics, Inc. ("E3"). Founded in 1989, E3 is an energy consulting firm with expertise in helping utilities, regulators, policy makers, developers, and investors make the best strategic decisions possible as they implement new public policies, respond to technological advances, and address customers' shifting expectations.

Q. DID YOU FILE DIRECT TESTIMONY AND EXHIBITS RELATED TO THIS PROCEEDING?

A. Yes. I filed direct testimony and exhibits with the Public Service Commission of South Carolina ("Commission") on February 8, 2021.

Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

A. My surrebuttal testimony responds to the rebuttal testimonies of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC (the "Companies" or "Duke") witnesses Ahmad Faruqui, Bradley Harris, Janice Hager, and Lon Huber as well as South Carolina Coastal Conservation League, Southern Alliance for Clean Energy and Upstate Forever (collectively the "Advocates") witness Edward Finley. My surrebuttal testimony will address rebuttal testimony from the Companies and Advocates on the following general topics:

1) Stipulation
2) ORS Zero Cost Shift Analysis
3) Embedded Cost of Service ("COS") Cost Shift
4) Winter Bring Your Own Thermostat ("BYOT") and Price Response Benefits
5) Interim Riders
6) Allocation of Generation Capacity in Time of Use ("TOU") Rates

STIPULATION

Q. THE ORS TESTIMONY HAS BEEN CRITICIZED BY THE DUKE WITNESSES BECAUSE ORS, AMONG OTHER THINGS, "FAILS TO CONSIDER THE OVERALL STIPULATION" (FARUQUI, P. 12). PLEASE RESPOND TO THE CRITIQUES OF DUKE AND THE ADVOCATES THAT ORS'S ANALYSIS DID NOT MEET THE STATUTORY REQUIREMENTS OF ACT 62.

A. It is ORS's statutory duty to review, examine and when necessary provide recommendations to modify certain aspects of the proposal put forth by the Companies. In this case, ORS reviewed, examined, and has determined it necessary to provide recommendations to the Stipulation. Specifically, ORS offers recommendations to correct the estimate derived from Duke's embedded cost shift study because the study inaccurately represents the embedded cost savings from customer-generators. ORS also recommends a modification to remove the perception that the rates resulting from the Stipulation would eliminate the cost shift for the Companies.

It is clear from ORS's testimony that ORS acknowledges the Stipulation and that substantial work by the Parties to reduce the cost shift for DEC and DEP compared to the current net energy metering ("NEM") rate structure. However, it is important for the Commission to be aware that, if approved, the Stipulation will still require non-participating customers to bear the burden of a cost-shift.

Despite the advocacy by Duke and the supporting Parties of the Stipulation, the fact remains that Act 62 requires the cost shift from customer-generators be eliminated to the greatest extent practicable. The Commission is required to determine a Solar Choice Metering Tariff that supports the Act 62 requirements and the Commission will balance the competing elements based on the testimony and analysis offered by ORS and other Parties. The Stipulation was entered into and is supported by Parties that are largely financially agnostic to the cost-shift to non-participants and the Stipulation requires careful vetting to ensure the resulting obligations comport with and fulfill the requirements of Act 62. ORS's modifications provide the Commission with an important foundation on which the Commission can make a well-reasoned decision.

Q. WITNESS FARUQUI CLAIMS ON PAGE 16 OF REBUTTAL TESTIMONY THAT ORS FAILS TO "RECOGNIZE THAT THE PROPOSED [STIPULATION] RATE DESIGNS ARE UNIQUE." PLEASE RESPOND TO THIS CRITICISM.

A. ORS used the Stipulation rate designs to make the recommended modifications. ORS made no changes to the Stipulation proposed rate structure and banking rules. While

ORS did recommend some minor changes to the way the TOU energy rates are set, ORS acknowledged the recommendations were of lower importance.

ORS ZERO COST SHIFT ANALYSIS

Q. PLEASE RESPOND TO WITNESS FARUQUI'S STATEMENT IN HIS REBUTTAL TESTIMONY (PAGE 32) THAT ORS REQUESTS THE COMMISSION TO PRIORITIZE THE GOAL OF ELIMINATING THE COST SHIFT OVER MINIMIZING DISRUPTION TO THE SOLAR INDUSTRY.

A. It appears that Witness Faruqui has not characterized the ORS direct testimony correctly. The actual text of my direct testimony is reproduced below.

> **Q. ARE YOU RECOMMENDING THAT THE COMMISSION ADOPT ZERO COST SHIFT TARIFFS?**
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> **A.** ORS recommends the Commission adopt the zero cost shift tariffs **if** the Commission determines that the elimination of the cost shift takes priority over the goal of Act 62 that look to minimize disruption of the solar industry in South Carolina. The primary focus of ORS in this proceeding is minimization of the cost shift, which the zero cost shift tariffs would accomplish.

The direct testimony places emphasis appropriately in bold lettering to indicate that ORS specifically recommend the zero cost shift tariffs **IF** the Commission determines that the elimination of the cost shift takes priority over minimizing disruption of the solar industry. ORS's direct testimony is focused on correctly quantifying the cost shift to provide the Commission objective, accurate, and transparent information.

EMBEDDED COS COST SHIFT

Q. PLEASE RESPOND TO THE ARGUMENTS MADE BY DUKE WITNESSES THAT THE USE OF WINTER PEAK TO ALLOCATE GENERATION CAPACITY COSTS FOR "PROCEDURAL" REASONS IS INCORRECT.

A. The simple fact is that solar generators provide very little power at the time of the Winter peak, and substantial power at the time of the summer 1 coincident peak ("1CP"). If the Summer 1CP allocator is retained, there would be a substantial reduction in the costs allocated to solar customer-generators which would make the cost shift disappear or nearly disappear under the proposed Stipulation tariffs.

A Summer 1CP, however, does not reflect the reality that Duke's system has been changing in South Carolina, which Duke acknowledged in its 2016 Resource Adequacy studies and 2020 Integrated Resource Plans recently filed with the Commission. The Companies indicate that winter is now when the Companies have the greatest need for generation capacity. If winter solar output is used to determine the reduction in capacity costs allocated to solar customer-generators, then the proposed Stipulation tariffs do not fully eliminate the cost-shift burden from new customer-generators.

The Companies argue that Duke does not have "the flexibility to choose an alternative embedded cost allocator for these dockets" (Harris Rebuttal, p. 8). The Companies and Advocates further assert that one cannot or should not modify the allocator outside of a rate case and that a new allocator used in this docket would have to be applied to all customer classes for DEC and DEP (i.e.: change all customer rates).[1] I disagree with

[1] Harris Rebuttal, pp. 8 and 10; Huber Rebuttal, pp. 7 and 18; Finley Rebuttal, p. 16.

these claims. Section 58-40-20 (D), as shown below, provides the Commission the flexibility to consider the costs and benefits of NEM programs under both marginal cost and embedded cost perspectives, and further provides the Commission the flexibility to examine the embedded cost to serve solar customer-generators without obligating the Commission to alter rates for any other customers via the careful insertion of the qualifier "for analytical purposes only."

> (D) In evaluating the costs and benefits of the net energy metering program, the commission shall consider:
> (1) the aggregate impact of customer-generators on the electrical utility's long-run marginal costs of generation, distribution, and transmission;
> (2) the cost of service implications of customer-generators on other customers within the same class, including an evaluation of whether customer-generators provide an adequate rate of return to the electrical utility compared to the otherwise applicable rate class when, for **<u>analytical purposes only</u>**, examined as a separate class within a cost of service study; (emphasis added)

I believe that Section 58-40-20 (D)(2) does not require the Commission to change rates for all customer classes, nor does it require the Commission to change the rates for non-participant residential or small general service customers based on the embedded COS study results. My reading of the intent of the phrase "for analytical purposes only" in Section 58-40-20 (D)(2) is to allow for evaluations of the embedded cost to serve customer-generators in the most accurate way possible, unrestricted by concerns over what such studies might imply for cost reallocation between classes.

The ORS embedded COS analysis using the winter 1CP meets this objective. If ORS conducted a full embedded COS study using the winter Loss of Load Expectation ("LOLE") provides a more accurate representation of how embedded costs should differ between customer-generators and their classes as a whole. If ORS conducted a full embedded COS study using the winter LOLE method, the total amount allocated to the residential and small commercial classes would probably change, but the cost reductions for the customer-generators in each class would likely be very close to what was estimated in my direct testimony. It is important for the Commission to understand that it is the difference in costs between customer-generators and the class as a whole that matters most for the cost-shift evaluation.

Q. WITNESS FARUQUI STATES IN HIS REBUTTAL TESTIMONY (PAGE 20) THAT "USING A DIFFERENT ALLOCATOR FOR A SUB-CLASS OUTSIDE OF A BASE RATE CASE WILL CREATE AN IMBALANCE OF COST RECOVERY AND COULD LEAD TO THE COMPANIES OVER- OR UNDER-COLLECTING THEIR REVENUE REQUIREMENT." IS THIS A VALID CONCERN?

A. No. Cost recovery from all classes would be the same as under current rates, with the exception of reduced cost-shift from new residential and small general service customer-generators.

Q. PLEASE RESPOND TO WITNESS FARUQUI'S REBUTTAL TESTIMONY (PAGE 20) STATEMENT THAT THE PROPOSED WINTER 1CP CHANGE MAY HAVE UNINTENDED CONSEQUENCES IF DONE OUTSIDE OF A BASE RATE CASE.

A. I disagree with Duke witness Faruqui's speculations because there is no need and ORS has not made a recommendation to change any rates other than to create a Solar Choice Metering Tariff. The consequence of using the winter LOLE would be a clear intentional reflection of the fact that the need for generation capacity for DEC and DEP now occurs in the winter.

Q. WITNESS HAGER'S REBUTTAL TESTIMONY (PAGE 15) ARGUES THAT THE SUMMER 1CP SHOULD BE USED BECAUSE THE CURRENT HISTORICAL ASSETS WERE BUILT TO SERVE THE SUMMER PEAK. WITNESS HAGER FURTHER STATES THAT "APPLYING A DIFFERENT ALLOCATOR WOULD ASSIGN COSTS TO CUSTOMERS WHO DID NOT CAUSE THOSE COSTS TO BE INCURRED." ARE THESE VALID REASONS TO USE THE HISTORICAL SUMMER 1CP IN THE ANALYSIS OF FUTURE SOLAR CHOICE METERING RATES?

A. No. Witness Hager asserts that one should vintage embedded costs and base collection of those costs on the utility conditions when each asset is built. But the Companies logic quickly falls apart with a simple thought experiment.

Assume Asset A is built by Duke when 80% of the load is industrial and 20% of the load is residential. Several years later, industry closes down and residential load grows so that the total Duke load is the same, but there is only one industrial customer left consuming 1% of that load. By Duke's logic, that one industrial customer should still bear 80% of the cost of Asset A. However, this is not the way costs are allocated in an embedded COS study, and clearly is not a fair way to allocate costs. Costs should be allocated based on how current customers are using the utility system, and similarly the allocations should reflect the needs of the current Companies' system --- which is a need for production capacity in the winter.

Q. PLEASE RESPOND TO WITNESS HAGER'S REBUTTAL TESTIMONY (PAGE 12) THAT HIGHLIGHTS THAT ORS DID NOT CHALLENGE THE SUMMER 1CP IN DOCKET NOS. 2018-318-E AND 2018-319-E AND THE COMMISSION FOUND THE SUMMER 1CP IS REASONABLE TO CONTINUE TO USE FOR DEC.

A. ORS's review and recommendations related to the COS study in the Companies general rate proceedings are specific to the use of the COS study for the rate proceeding. ORS witness Michael Seaman-Huynh stated in direct testimony in both dockets the following: "ORS concluded that, <u>for the purposes of this Application</u>, the methodology applied in constructing the Company's COSS is reasonable. The methodology provides a reasonable assessment and allocation of the Company's revenues, operating expenses and rate base items."[2] (emphasis added) My understanding from discussing this with Mr. Seaman-Huynh is that the primary issue in the rate cases was the change to a minimum system design method for customer costs. The generation allocation does not appear to have been an issue of substantial contention --- which is understandable for analyses that are a narrow review of total customer class allocations. Indeed, Advocate witness Finley confirms the allocation methodology is often not an area of high concern in rate cases. On page 13 of his rebuttal testimony, Advocate witness Finley states that setting the appropriate allocation method "is one decision where the utility, though motivated to select

[2] https://dms.psc.sc.gov/Attachments/Matter/552371d1-8005-4e83-8ab6-ee265cac7955

the best method, is often less concerned in selecting the appropriate cost of service study, than in selecting the appropriate revenue requirement to be allocated."

Also, in my experience, the desire for rate stability can often dampen the interest in re-examining old methodologies. The Summer 1CP seems to have prevailed as an unchallenged incumbent, but that is not the same as emerging a winner from a contested case.

Q. PLEASE RESPOND TO WITNESS HAGER'S REBUTTAL TESTIMONY (PAGE 15) WHERE SHE STATES THAT ANY CHANGE IN THE COST ALLOCATION METHOD WILL NEED TO BE CAREFULLY VETTED BECAUSE OF THE POTENTIAL FOR LARGE COST SHIFTS.

A. ORS's modifications do not require alteration of the rates of any customers other than future solar customer-generators. The Companies provide no support or proof to support the speculative assertions that the potential for a large cost shift may occur. Moreover, Duke has not used LOLE values in the Companies' embedded COS studies, the National Association of Regulatory Utility Commissioners ("NARUC") Electric Utility Cost Allocation Manual (page 39) recognizes the appropriateness of using LOLE in embedded cost studies

Q. WITNESS HAGER'S REBUTTAL TESTIMONY (PAGE 18) CLAIMS THAT YOUR CONCERNS OVER THE SUMMER 1CP ARE PREMATURE AND THAT IF THINGS CHANGE IN FUTURE RATE CASES, THEN TARIFFS CAN BE UPDATED AS APPROPRIATE. PLEASE EXPLAIN YOUR CONCERNS WITH ADJUSTING THE SOLAR CHOICE METERING TARIFFS AT A LATER DATE.

A. I have been performing revenue allocation and rate design for over 30 years. In my experience, once customers receive a favorable rate (example the current NEM rate structure), it is very difficult to change that rate without significant customer dissatisfaction. In the case of existing and new customer-generators, any change to increase the Solar Choice Metering Tariffs may frustrate customers in the future. It is far better to get the rates and rate structure correct now, or at least have a good indication of any cost shift caused by the rates, than to try to make a large correction to account for an inaccurate rate mid-course.

BYOT AND PRICE RESPONSE BENEFITS

Q. WITNESS HUBER'S REBUTTAL TESTIMONY (PAGE 11) OBJECTS TO YOUR ARGUMENT THAT CUSTOMER-GENERATORS WOULD RECEIVE MORE IN INCENTIVES THAN A NON-SOLAR CUSTOMER. WITNESS HUBER CLAIMS THAT SOLAR AND NON-SOLAR CUSTOMERS WOULD RECEIVE THE SAME INCENTIVES UNDER BYOT. PLEASE CLARIFY THE ORS CONCERNS.

A. ORS agrees that both types of customers would receive the same benefits under the BYOT program. However, under the MOU, solar customer-generators would receive an additional \$0.36/Watt-dc incentive payment for participating in BYOT. Witness Huber is correct that under the BYOT program, the incentives are the same, but solar customer-generators will receive a very large additional incentive for participating in BYOT (an incentive that non-solar customers would not receive).

I also think it is important for the Commission to be aware of this additional incentive, since it is a commitment by Duke in the MOU that is not clearly presented in the

Stipulation, Duke's testimonies and the Companies have not requested approval for this MOU commitment in the dockets.

Q. PLEASE RESPOND TO DUKE WITNESS FARUQUI'S CRITICISM (REBUTTAL, P. 24) OF ORS'S ANALYSIS BECAUSE ORS DID NOT ADJUST ITS RECOMMENDATIONS TO REFLECT THE BENEFITS FROM CUSTOMERS REDUCING PEAK USAGE IN RESPONSE TO HIGHER PRICES.

A. On page 22 of direct testimony, I explicitly state that the estimate of the cost shift reductions from price response are $143 per year for DEP and $155 per year for DEC solar customer-generators, but that these cost shift reductions should not be included in the Zero Cost Shift rates because customer-generators participating in the Winter BYOT program will receive direct incentives of approximately the same amounts.

It is possible that customers that do not participate in the Winter BYOT program would also change their usage, but based on my experience I expect responses from customers not participating in the Winter BYOT program would be less because of the absence of the smart thermostat and the absence of the influence of the BYOT program. In addition, I note that inclusion of any benefits from usage reduction would require a reduction in the kilowatt-hours ("kWh") used to design rates. This reduction in kWh used to design rates would dampen any reduction in rates, since the lower cost to serve the customer group is now being divided by a reduced number of kWh.

Lastly, my direct testimony states it is standard utility practice to **not** incorporate price response into the design of rates. To incorporate price response, substantially increases the complexity of the rate design process because of the circularity introduced by having customer usage change due to prices. Basically, an increase in a rate, will reduce the customer usage, which could change the cost to serve all customer classes, which would then change the rate, which would trigger a different price response and a different cost change, and trigger a new round of changes. Of course, one could always stop prior to reaching a stable solution and there are ways to derive quadratic equations that can directly solve for the final rates, but such formulations are complicated to derive and explain. Adding to these complications is the fact that there is a wide range of price elasticity estimates in the literature. As a result, such excessive effort for an effect that is not precisely known is generally deemed unnecessary in setting rates.

Q. PLEASE RESPOND TO DUKE WITNESS HUBER'S REBUTTAL TESTIMONY (PAGE 20) WHERE HE ASSERTS THAT YOU WERE INCORRECT TO EXCLUDE PRICE RESPONSE BENEFITS FROM YOUR ANALYSIS BECAUSE "THE CONSIDERATION OF THE SOLAR CHOICE TARIFF IS SEPARATE FROM THE CONSIDERATION OF ANY DSM/EE INCENTIVES WHICH HAVE THEIR OWN COST EFFECTIVENESS TESTS AND REGULATORY TREATMENT."

A. Witness Huber is correct that approval for the BYOT incentive will occur in a future proceeding --- likely in the proceeding that approves demand-side management and energy efficiency budgets and/or programs. However, the MOU between Duke and the Solar Parties established a commitment under item 3 that Duke would propose the incentives laid out in Exhibit C of the MOU of $0.39/Watt-dc. *See* surrebuttal testimony of Robert A. Lawyer Surrebuttal Exhibit RAL-1, page 20 of 23. While the incentive must receive

Commission approval, the MOU itself is sufficient to consider the incentive to be part of the Stipulation and therefore considered in the ORS cost shift analysis. After all, several Solar Parties thought the MOU was important enough to provide it to the Commission. And to be clear, ORS does not increase the cost shift estimate, but rather decreases the cost shift estimate for customer price response.

INTERIM RIDERS

Q. WITNESS HARRIS'S REBUTTAL TESTIMONY (PAGE 15) ASSERTS THAT THERE IS NO NEED TO APPLY A $10 BASIC FACILITIES CHARGE OR PLACE CUSTOMERS ON TOU NETTING BECAUSE THE MONTHLY CAPS ON SOLAR APPLICATIONS MITIGATE THE RISK TO NON-PARTICIPANTS. ARE THE MONTHLY CAPS SUFFICIENT TO PROTECT NON-PARTICIPANTS?

A. No. Act 62 directs the Commission to eliminate the cost-shift to the greatest extent practicable. It does not qualify the statement to authorize large cost shifts if such cost shifts only apply to a limited number of customer-generators. The modifications recommended by ORS would reduce the cost shift and move the Interim Riders to be more consistent with the Permanent Tariffs.

Q. PLEASE RESPOND TO DUKE WITNESS HARRIS'S REBUTTAL TESTIMONY (PAGE 16) WHERE HE OBJECTS TO YOUR RECOMMENDATION TO INSTITUTE MONTHLY TOU NETTING FOR NON-RESIDENTIAL CUSTOMER GENERATORS ON INTERIM RATES.

A. Witness Harris cites the large undertaking that would be required to update the TOU periods on all non-residential TOU rate schedules for the Companies. He further states that without an appropriate analysis of non-residential TOU periods, proposing non-residential TOU rates may increase the per customer-generator cross-subsidization.

It appears Witness Harris interprets the ORS recommendation as being a change in the retail TOU periods. That is incorrect. The ORS recommendation moves from monthly netting to monthly TOU netting. If the rate schedule does not have TOU periods, the TOU periods for the Solar Choice Metering Tariff can be used. The ORS recommendation would not impact the retail rates, only the amounts of solar exports that can be netted each month. Since the retail rate does not have TOU periods, the credit for the netted energy would be at the normal retail energy rate.

If the schedule has TOU periods, those TOU periods can be used for the monthly TOU netting (if that is not done already). There is no need to apply the Solar Choice Metering Tariff TOU periods if they differ from the schedule's retail TOU periods.

ALLOCATION OF GENERATION CAPACITY COSTS IN TOU RATES

Q. PLEASE RESPOND TO DUKE WITNESS HUBER'S REBUTTAL TESTIMONY (PAGE 16) IN WHICH HE OBJECTS TO THE ORS PROPOSAL TO ALLOCATE GENERATION CAPACITY-RELATED COSTS USING LOLE.

A. Witness Huber does not provide a compelling reason for the continued use of the Cost Duration Method for generation costs. I can understand the use of the Cost Duration Method for transmission and distribution ("T&D") capacity costs – although there are alternative methods for T&D that are similarly useful for allocating T&D capacity costs to hours using hourly allocation factors based on system loads. However, for generation capacity, probabilistic methods such as LOLE are far more appropriate because they factor in generation scheduled maintenance, and generator outages. The Cost Duration Method only looks at the demand side of the equation and ignores the equally important issue of generation availability.

Q. WITNESS HUBER ALSO STRESSES THAT "THE COST DURATION METHOD LINKS SYSTEM COSTS TO THE TIME PERIODS DURING WHICH THOSE COSTS ARE INCURRED, AND IT ACCOUNTS FOR THESE COSTS OVER THE THREE MAJOR UTILITY FUNCTIONS --- TRANSMISSION, DISTRIBUTION, AND GENERATION." (HUBER REBUTTAL, P. 16). IS THIS A JUSTIFICATION TO RETAIN THE COST DURATION METHOD FOR THE ALLOCATION OF GENERATION COSTS?

A. No. Witness Huber seems to be asserting that the Cost Duration Method allocation factors need to reflect not only generation, but also transmission and distribution. If a single set of Cost Duration Method allocators were needed to assign generation, transmission, and distribution costs, then it would be appropriate for the Cost Duration Method to assign costs to hours that do not drive the need for generation capacity. DEP, however, does not use the same Cost Duration Method allocators for generation, transmission, and distribution. Similarly, DEC does not use a single set of allocators for generation, transmission, and distribution.

Because the allocation factors for each major utility function are not the same, it is not necessary for the generation allocation factors to address the timing of the need for transmission or distribution capacity. Therefore, the generation allocation factors do not need to assign costs to hours that do not drive the need for generation capacity. The generation allocation factors should focus on generation capacity --- which is what the ORS recommended LOLE method does.

Q. WILL YOU UPDATE YOUR SURREBUTTAL TESTIMONY BASED ON INFORMATION THAT BECOMES AVAILABLE?

A. Yes. ORS fully reserves the right to revise its recommendations via supplemental testimony should new information not previously provided by the Company, or other sources, becomes available.

Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?

A. Yes.